

What's the Weather?

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Grade Level K-2
Duration 3 class periods

National Standards

GEOGRAPHY

Element 2: Places and Regions

4 The physical and human characteristics of places

Element 5: Environment and Society

15. How physical systems affect human systems

NEXT GENERATION OF SCIENCE STANDARDS

K. Interdependent Relationships in Ecosystems: Animals, Plants, and Their Environment

K-ESS2-2 Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.

K.Weather and Climate

K-ESS2-1 Use and share observations of local weather conditions to describe patterns over time.

K.Earth and Human Activity

K-ESS-3 Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to severe weather.

AZ Standards

ELA

Reading

Key Ideas and Details

K.RI.2 With prompting and support, identify the main topic and retell key details of a text.

1.RI.2 Identify the main topic and retell key details of a text

2.RI.3 With prompting and support, describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.

Writing:

Text Types and Purposes

K.W.4, 1.W.4 and 2.W.4 With guidance and support from adults, produce writing in which the development and organization are appropriate to task and purpose.

MATHEMATICS

Counting and Cardinality

K.CC.B.5 Count to answer “how many?” questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.

K.CC.C6 Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies. (Include groups with up to ten objects)

Measurement and Data

1.MD.C.4 Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

2.MD.D.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in the graph.

Arizona Social Science Standards

GEOGRAPHY

The use of geographic representations and tools helps individuals understand their world.

K.G1.1 Use, explore, and construct maps, graphs and other geographical representations to support content focus. Key concepts include but are not limited to graphing local weather and mapping the classroom.

1.G1.1 Use, explore and construct maps, graphs, and other geographical representations to support content focus.

2.G1.1 Use and construct maps, graphs, and other geographic representations of familiar and unfamiliar places in the world.

2.G1.1 Use maps, globes, and other simple geographic models to identify and explain cultural and environmental characteristics of places in the world based on stories shared.

Human-environment interactions are essential aspects of human life in all societies.

K.G2.1 Explain how water and weather impacts humans.

2.G2.1 Explain how weather, climate, and other environmental characteristics affect people's lives in a place or region being studied.



What's the Weather?

SCIENCE

Earth and Space Science

K.E1U1.3 Observe, record, and ask questions about temperature, precipitation, and other weather data to identify patterns or changes in local weather.

2.E1U2.6 Analyze patterns in weather conditions of various regions of the world and design, test, and refine solutions to protect humans from severe weather conditions.

SIOP Elements

<p>Preparation Adapting content Linking to background Linking to past learning Strategies used</p>	<p>Scaffolding Modeling Guided practice Independent practice Comprehensible input</p>	<p>Grouping Option Whole class Small groups Partners Independent</p>
<p>Integrating Processes Reading Writing Speaking Listening</p>	<p>Application Hands on Meaningful Linked to objectives Promotes engagement</p>	<p>Assessment Individual Group Written Oral</p>

Arizona English Language Proficiency Standards

Stage I

Speaking and Listening

Delivery of Oral Communications

Standard 2: The student will express orally his or her own thinking and ideas.

B-7: responding to social interactions, courtesies, and personal information questions using complete sentences with instructional support.

Reading

Comprehending Text

Standard 3: The student will analyze text for expression, enjoyment, and response to other related content areas.

B-3: answering comprehension questions to respond to text heard or read.

B-5: participating in teacher guided discussions to restate facts from text read aloud.

Overview

This unit of study allows students to investigate how temperature relates to weather and how different types of weather effects what we wear and the things we do.

Purpose

In this lesson students will learn that different locations around the state experience different kinds of weather. This lesson includes strategies for diverse learners (ELLs).

Key Vocabulary

environment: area around a human, animal, plant, or object

weather: all of the things that occur in the air (rain, snow, wind, heat)

natural: made by nature

temperature: how cold or hot something is

Materials

SESSION ONE



What's the Weather?

- Weather PowerPoint
- Photos or bag of clothes (realia) that reflect a variety of weather conditions examples: jacket (windbreaker), shorts, bathing suit, heavy coat, gloves/mittens, etc.)
- Vocabulary cards
- Weather Writing
- Weather Sorting (Page 1 and Page 2)
- Books about weather for read-alouds (see Suggested Book List)

SESSION TWO

- Student thermometers
- Temperature Recording Sheet
- Ice
- Water
- Clear plastic 16 oz cups
- Chart paper

SESSION THREE

- Mapping Arizona's Weather map
- Arizona Rain Data (Teacher Pages)
- Bag of Skittles candies (yellow, purple and red only)
- Projection device like doc cam
- Large labels for Phoenix, Tucson, Flagstaff
- Snack cups or snack bags

Objectives

The student will be able to:

1. understand and describe different types of weather: heat, snow, and rain.
2. describe how temperature relates to weather.
3. represent weather patterns in Arizona on a map and compare weather patterns.
4. graph weather patterns.

Procedures

Background Knowledge: Students have previously been introduced to maps and globes. They understand the difference between maps and globes and understand the purpose of a map. Students know the difference between hot and cold.

SESSION ONE

Engage

1. Have the students raise their hand if they've ever been in snow or rain. Ask for volunteers to tell how it feels. **(Preparation: Linking to background)** Show the YouTube video to build vocabulary <http://www.youtube.com/watch?v=CVuKr5y9AbY>

Project the Weather PowerPoint. Discuss the vocabulary and characteristics of different kinds of weather.

2. Bring out the bag of clothes (or photos) representing different types of weather. Have students help you sort them into weather piles as they identify what type of weather (rain, snow, sunny) each piece is best suited. Ask "why" questions as students describe in which pile each piece should be placed. **(Application: Promotes engagement)**

Explore

3. Distribute or project the weather vocabulary cards. Read one or two informational texts about weather. (See Suggested Book List) **(Integrating Processes: Reading, Listening)**
4. Facilitate a discussion between students around the information learned from the books. **(Application: Meaningful, Promotes Engagement; Integrating Processes: Speaking, Listening)**
5. Have students complete the Weather Sorting (Pages 1 and 2) by cutting out the images and placing them in the right column. Then have them complete the Weather Writing. **(Integrating Processes: Writing; Assessment: Individual)**

SESSION TWO

Explain

1. Review the information learned during the last session. Ask students if they know what temperature means. Facilitate a short discussion on hot, warm, and cold and how thermometers work. Demonstrate how thermometers are used to measure weather. **(Scaffolding: Modeling; Preparation: Linking to past learning)**
2. Divide students into groups of four and give each group one cup of plain tap water, one cup of ice water and four thermometers. Instruct each group of students to measure the temperature of the tap water and the ice water. Take the students outside and have each group place a thermometer in direct sunlight and one in a shaded area. **(Grouping Option: Small groups; Application: Hands-on)**
3. Have each group record the temperatures on the recording sheet. Compile temperature data on chart paper so students can see the results of each group. **(Scaffolding: Comprehensible Input)**
4. Conclude the session by discussing Session One (types of weather and clothing) to today's lesson on how and cold. How does weather link to temperature? **(Application: Linked to objectives)**

SESSION THREE

What's the Weather?

Note: You can do the graphing activity as guided practice in the beginning of the year, or it can be done as an independent assignment when the students are more capable.

Elaborate

1. Review information learned in the two prior sessions. **(Preparation: Linking to past learning)**
2. Facilitate a discussion that connects the concept of weather and Arizona. Project the Mapping Arizona's Weather map. Explain that Arizona has a variety of weather patterns across the state.
3. Tell students that they will be graphing weather in Arizona. The first way will use a map of Arizona and Skittles. **(Application: Meaningful)**
4. Use a doc cam to model how the activity is to be completed stressing the color Skittle that corresponds to each type of weather (rain = red, snow =purple, sunny= yellow). Using the January Arizona Weather Data page, read each day's weather for all three locations. Read them one at a time while holding up the city/symbol sign. Hold up the color Skittle that corresponds with each piece of data. Demonstrate placing the Skittle in the correct location on the Arizona map. (e.g., Place the correctly correspond color of Skittle on the city of Flagstaff for the recorded weather information on day One. As the students recognize the pattern in the data and the procedures, begin giving them responsibility and ownership of the lesson. (e.g., Teacher – "Flagstaff had rain. What color Skittle are you going to use?" or after you have read a few Flagstaff, snow data, say, "Flagstaff had.....?" and have the students predict what you're going to say.) In this way the activity becomes more exciting and challenging for them. **(Application: Hands on, Meaningful, Linked to objectives, Promotes Engagement)**
5. Once all the data has been graphed on the map using Skittles candies, distribute the Rain in January, Snow in January, and Sunny in January to each student or group of students. Have students transfer the information from the Mapping Arizona's Weather map by graphing it on the 3 rain, sun and snow graphs using colored markers (purple, red,

yellow). **(Application: Hands on, Meaningful, Linked to objectives, Promotes Engagement)**
6. Have students compare the graphed information. Ask which city has the most rain? Which city has the most snow? Which city has the least amount of rain? Which city has the least amount of snow?
(Assessment: Individual)

Assessment

Geography, ELA, and Science

To be considered mastery, students will score:

- 90% or higher on the Weather Sorting Page 2 for a geography, reading, and science grade.
- 80% or higher on the Weather Recording Graph for a geography, math, and science grade.
- 80% or higher on the Temperature Recording Sheet for a geography and science grade.
- 100% on Weather Writing (one word answer must make sense) for a writing grade.
- 75% or higher on an oral test over the lesson vocabulary for a reading grade.

Extensions

Introduce the water cycle and create a class terrarium so students can observe the water cycle. Connect the observations to what students know about rain.

Sources

Mapping Arizona's Weather Map adapted from Arizona Geographic Alliance
<https://geoalliance.asu.edu/sites/default/files/maps/AzcitiesCompassLatLong.PDF>

Clker.com ClipArt
Microsoft ClipArt

Student thermometers (Amazon—10 for \$13)

YouTube Video to build vocabulary
<http://www.youtube.com/watch?v=CVuKr5y9AbY>